



Rogue™ and Rogue™ Plus Mobile Digital Video Recording System

Installation and User Guide



Document Part Number 700-0066 R001

Seon Design® Inc.

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Contact Information

Seon Design Inc.
Unit 111, 3B Burbridge Street
Coquitlam, BC
Canada V3K 7B2


Telephone	604.941.0880
Toll Free Telephone	1.877.630.7366
Fax	604.941.0870
Toll Free Fax	1.866.664.3677
Email	sales@seon.com
Web site	www.seon.com

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Who This Guide is For

The *User Guide* is intended for anyone who needs to install and operate the Rogue Mobile Digital Video Recording (DVR) System. The Guide provides explanations and procedures for installing, operating, configuring, maintaining, and troubleshooting the Rogue Mobile DVR.

References to Rogue System

In this Guide, both Rogue and Rogue Plus are referred to as Rogue Mobile DVR system. When information is specific to one model, then reference is made to Rogue and Rogue Plus.

Conventions Used



CAUTION

Cautions identify conditions or practices that could result in damage to the unit or other equipment.

Important: These notes provide important information, which are not as serious as a Caution.

Tip: These notes provide handy tips.

Abbreviations and Acronyms

Acronym	Definition
DVR	Digital video recorder
FPS	Frames per second
GPS	Global Positioning System
HD	Hard drive
IPS	Images per second
IR	Infrared
LAN	Local area network
MPEG	Moving Picture Experts Group
RA	Return Authorization
TCM	Transmission Control Module
UTC	Universal Time Coordinated

Who This Guide is For

Related Documentation

Rogue™ Player Software User Guide, Document part number 700-0065

Accessories

Remote control, part number RG-RC

Finding Information Online

You can find more information about Seon Design Inc. as well as its products and services at **www.seon.com**.

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CHAPTER 1

Introduction

This chapter describes the product features and components of the Rogue Mobile Digital Video Recording (DVR) System. See Chapter 4, “Operation” for a full description of the functional features.

1.1. Rogue Mobile DVR System

The Rogue Mobile DVR system consists of the following components:

- Rogue Mobile DVR
- Rogue lock box or Rogue mounting bracket or Scout lock box mounting adapters
- Camera
- Media cartridge (s)
- Alarm input switch and cable
- Power input harness with in-line fuses for constant and switched power lines

The Rogue Plus consists of the following additional components:

- Smart-Link module for signal interfaces, including:
 - GPS data and vehicle speed
 - Five different input signals
 - Diagnostic indicator or red button alarm
 - Four different alarm event inputs

1.1.1. Rogue Mobile DVR Product Features

- Rugged digital video recorder
- H.264 video compression
- Two audio channels and one video channel

1.1.2. DVR Front Panel Features

The front panel has important features such as the media cartridge lock, removable media cartridge, status indicator lights, video out, audio output jacks, and temporary power button. The DVR buttons provide both menu navigation and player functions. See Figure 1-1.

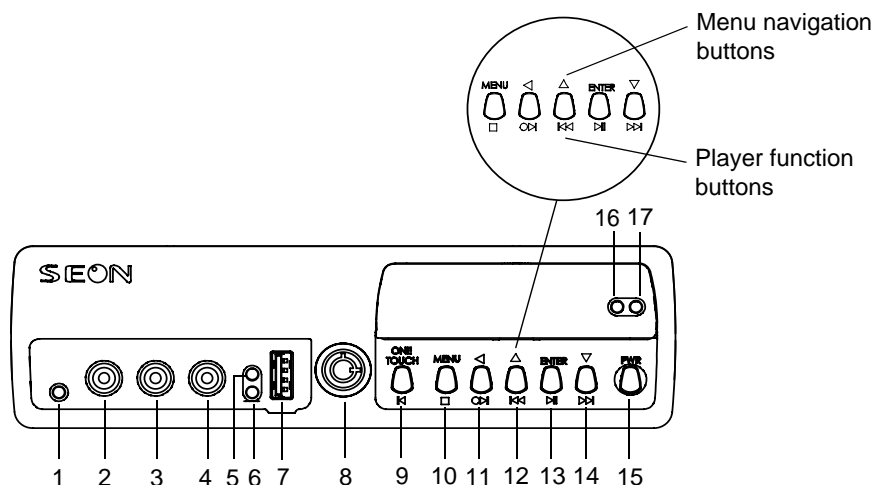


Figure 1-1 Rogue Mobile DVR Front Panel

Table 1-1 DVR Front Panel Features

Item	Feature	Item	Feature
1	Infrared (IR) receiver	9	ONE TOUCH/REV button
2	AUDIO OUT 1	10	MENU/STOP button
3	AUDIO OUT 2	11	BACK ARROW/RECORD/FRAME ADVANCE button
4	VIDEO OUT	12	UP ARROW/FAST REWIND button
5	POWER INDICATOR	13	ENTER/PLAY/PAUSE button
6	STATUS INDICATOR	14	DOWN ARROW/FAST FORWARD button
7	USB port	15	POWER (PWR) button
8	MEDIA CARTRIDGE LOCK	16	MEDIA CARTRIDGE POWER INDICATOR (Green)
		17	MEDIA ACCESS INDICATOR (Red)

1.1.3. DVR Back Panel Features

The back panel has the connector inputs where other system components connect to the DVR. See Figure 1-2 and Table 1-2. For detailed information on connecting to the back panel, see Chapter 2, “Installation”.

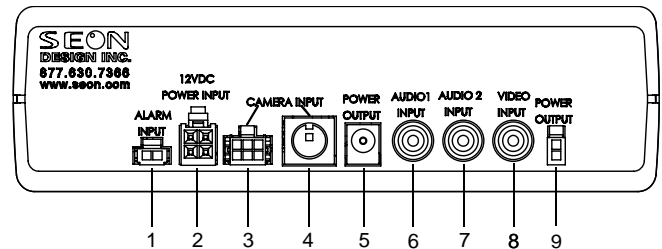


Figure 1-2 DVR Back Panel

The back panel accommodates three types of camera connectors:

- a 6-pin Molex® (Item 3)
- an integrated mini-DIN connector (Item 4)
- RCA jacks (Items 5, 6, and 8)

Important: Only one of these camera connectors can be used at a time.

Table 1-2 DVR Back Panel Features

Item	Feature	Description
1	ALARM INPUT	Connector (2-pin) for the alarm input cable
2	12VDC POWER INPUT	Connector (4-pin) for the constant and switched power harness
3	CAMERA INPUT	Connector (6-pin) for a camera cable
4	CAMERA INPUT	Connector (DIN style) for a camera cable with audio
5	POWER OUTPUT	Connector (2.1 mm barrel) for an external IR or microphone
6	AUDIO 1 INPUT	Connector (red RCA jack) for a remote microphone or a camera
7	AUDIO 2 INPUT	Connector (white RCA jack) for a remote microphone or a camera
8	CAMERA (VIDEO) INPUT	Connector (yellow RCA jack) for a camera cable
9	POWER OUTPUT	Connector (2-pin) for an external IR or microphone

1.1.4. Remote Control (Optional)

The remote control shown in Figure 1-3 provides the same options as the front panel DVR buttons.

- Menu navigation buttons are used to configure the menu system.
- Player function buttons are used for video playback operation.

For more information, see “Using the DVR Buttons or Remote Control to Configure” on page 3–3 and “Using the DVR Buttons or Remote Control to Playback Video” on page 4–4.

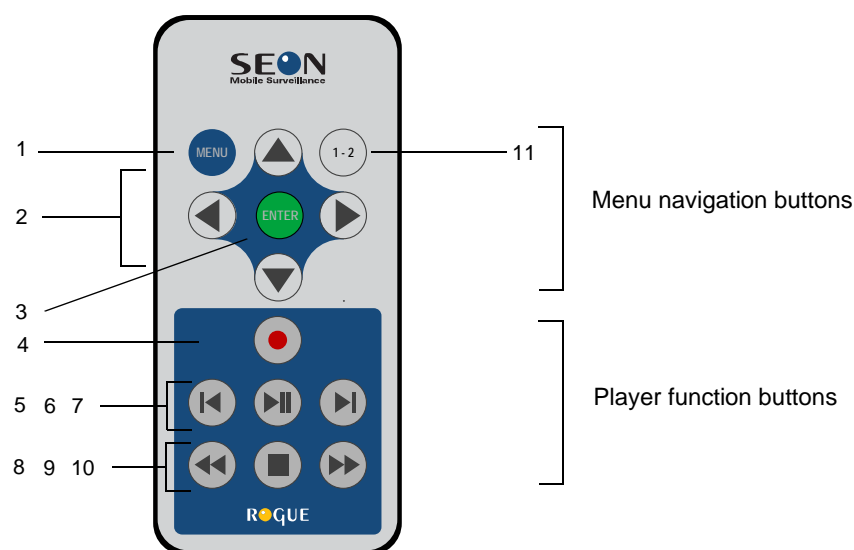


Figure 1-3 Remote Control

Table 1-3 Remote Control Features

Item	Button	Description
1	MENU	Enters and exits the Menu system to configure the DVR. If the DVR is recording, press Stop to enter Idle mode, and then press MENU .
2	Menu navigation <ul style="list-style-type: none"> Up arrow Back arrow Down arrow Right arrow 	In the Menu system: <ul style="list-style-type: none"> Scrolls up one line of text or increases a selected value. Navigates to a previous item. Scrolls down one line of text or decreases a value. Navigates to the next item.
3	ENTER	Displays the next screen or confirms the selection of a menu item.
4	Record	Records video.
5	Frame Reverse	During video playback, reverses by a single frame when playback is paused.
6	Play/Pause	Plays back video or pauses video playback. In fast forward or reverse playback mode, press to return to normal playback.
7	Frame advance	In playback with the video paused, advances by a single frame.
8	Fast rewind	Plays the video in reverse playback. Each press of the button increases the speed 2×, 4×, 8×, 16×, and 64×. When playback is paused, initiates 1/3 speed slow motion.
9	Stop	Stops recording.
10	Fast forward	Fast forwards video playback. Each press of the button increases the speed 2×, 4×, 8×, 16×, and 64×. When playback is paused, initiates 1/3 speed slow motion.
11	1 - 2	This button is for future use.

1.1.5. Lock Box (Optional)

The lock box shown in Figure 1-4 provides the following features for the DVR:

- Reversible, removable lock door prevents unauthorized access. Authorized personnel can use the lock box key to remove the hinged lock door when DVR access is necessary.
- Cable grommet and hole plug for inserting wiring into the lock box.
- Mounting patterns that can accommodate a horizontal or vertical installation.

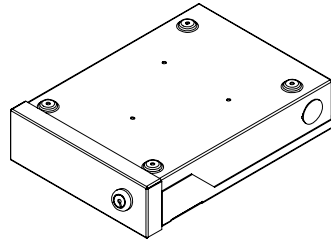


Figure 1-4 Rogue Mobile DVR Lock Box

1.1.6. Mounting Bracket (Optional)

The mounting bracket shown in Figure 1-5 can accommodate an installation to a horizontal mounting surface.

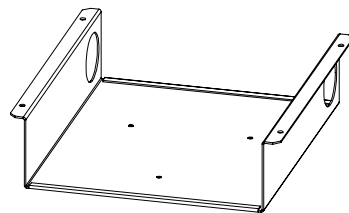


Figure 1-5 Mounting Bracket

Installation

This chapter provides information and procedures for installing the Rogue Mobile Digital Video Recording (DVR) System. The options for installing the Rogue Mobile DVR include:

- “Installation with the Rogue Mobile DVR Lock Box” on page 2–4.
- “Installation with the Mounting Bracket” on page 2–6.
- “Installation with a Mounting Adapter in the Scout Lock Box” on page 2–7.

2.1. Step 1: Installing the Rogue Mobile DVR

The DVR is easy to install as a new installation or into an existing Scout lock box. For new installations, the DVR can be installed with the Rogue Mobile DVR lock box or with the mounting bracket. (For the Rogue Mobile DVR lock box specifications, see Figure A-1.)

The DVR can be installed into the existing Scout lock boxes by securing the DVR onto a mounting adapter which slides onto the lock box rails.

2.1.1. Installation Materials

Planning an installation

Check that you have all the system components and inspect the units for any scratches or damage.

Materials required

Depending on your installation, the following materials may be required to complete the installation. Make sure you have the specific components for your installation before beginning the installation procedure.

- Rogue Mobile DVR
 - DVR keys for securing the removable media cartridge
- Mounting Options
 - Product name 2 lock box and lock box keys
 - Mounting bracket
 - Product name 2 mounting adapter for Scout lock box and lock box keys
- Camera
- Alarm input switch
- Constant and switched power harness
 - Fuses: 5 A power fuse and 1 A ignition fuse
 - Fuse holders
- Butt splice connectors
- Four #10 × ¾" sheet metal screws
- Four #10 × ¾" self-drilling screws
- Three 6-32" × ¼" security Torx® button head machine screws

You will need these additional materials to complete the Rogue Plus installation:

- Smart-Link™ module
 - Smart-Link-to DVR connection harness
- Alarm and diagnostic options
 - Diagnostic indicator or
 - Red alarm button switch
 - Seon video recording label (if purchased)
- GPS options (if purchased)
 - GPS receiver kit, thread mount

- GPS receiver kit, magnetic mount
- CAN interface cable (if purchased)

2.1.2. Purchasing Installation Kits or Mounting Adapters

All of the mounting hardware can be ordered as a Rogue DVR system or as an individual part. The individual part numbers are listed in Table 2-1 and Table 2-2. Contact your Seon Design sales representative or dealer about purchasing the necessary part to customize your installation.

Table 2-1 provides the Seon part numbers for new installation kits.

Table 2-1 New Installation Kits

New Installation Kit	Part Number
Rogue DVR lock box (see Figure 2-1)	RG-LB
Rogue DVR mounting bracket (see Figure 2-3)	RG-MB

Table 2-2 provides the Seon part numbers for the mounting adapters available for the different-sized lock boxes.

Table 2-2 Mounting Adapters for Scout Lock Box Installation

Mounting Adapter Kit	Part Number
Rogue DVR mounting adapter for LB box (SCTLB)	RG-MA-LB
Rogue DVR mounting adapter for LC box (SCTLC)	RG-MA-LC
Rogue DVR mounting adapter for LD box (SCTLD)	RG-MA-LD
Rogue DVR mounting adapter for LE box (SCTLE)	RG-MA-LE

2.1.3. Installation with the Rogue Mobile DVR Lock Box

The DVR can be installed in the Rogue Mobile DVR lock box which is secured to the mounting surface using the four screws provided. See Figure 2-1.

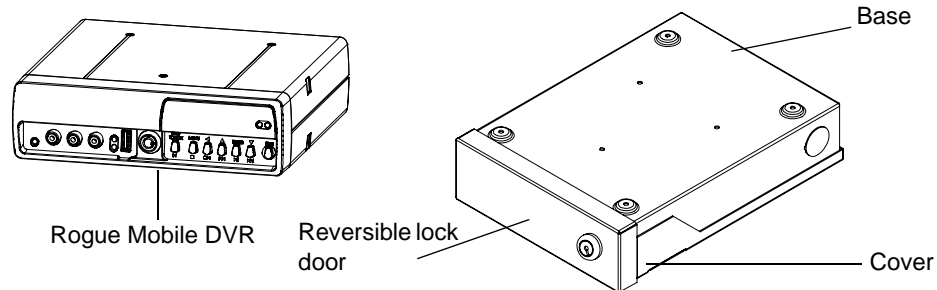


Figure 2-1 Rogue Mobile DVR and Lock Box

The connections on the front and back of the DVR are secured once the DVR is installed, and the lock box is locked. The reversible, hinged lock door can be removed. The cable grommet and hole plug allow the wiring to be inserted from either side of the lock box.

2.1.3.1. Horizontal Installation

The lock box can be installed horizontally. Four mounting points are located on the base of the lock box for securing the unit and raising the unit off the mounting surface by 1/8".

To install the DVR in the lock box:

1. Unlock the door with the lock box key provided, and remove it from the base of the lock box. See Figure 2-2.
2. Remove the cover from the base by applying even inward pressure on the front tabs with your index fingers.
3. Press the flange through the slot by applying outward pressure with your thumbs.
4. Remove the cover, supporting with one hand.



CAUTION: Equipment damage

Use only the Torx button head screws provided to fasten the DVR to the lock box. Longer screws may penetrate the bottom of the DVR and damage the unit.

5. Depending on your mounting requirements, fasten the DVR to the cover or the base using the three Torx button head machine screws.
6. Determine where the wiring and camera cables will enter the lock box: on the left side or on the right side. If necessary, swap the cable grommet and the hole plug.

7. Use the four #10 × ¾" sheet metal screws or #10 × ¾" self-drilling screws to secure the base of the lock box in a suspended mount or to the floor.

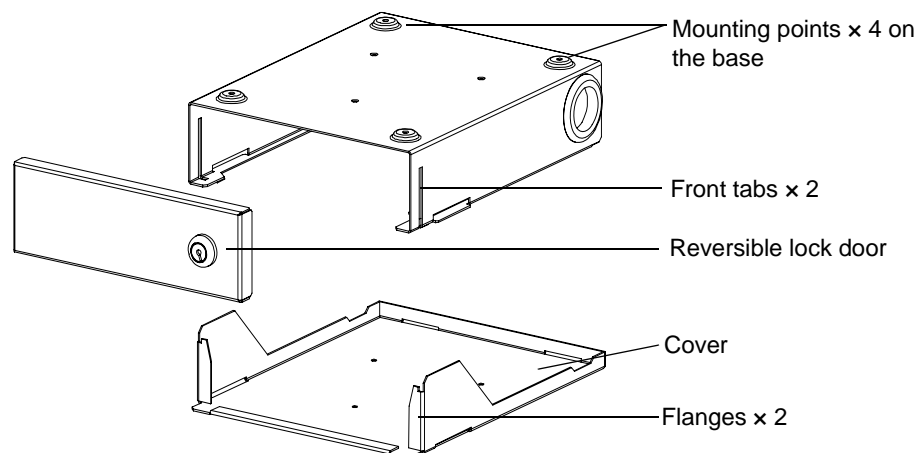


Figure 2-2 Lock Box Components

2.1.3.2. Vertical Installation

The lock box can be installed vertically. Four mounting points are located on the base of the lock box for securing and raising the unit off the mounting surface by 1/8". Figure 2-2 shows the lock box components.

To install the DVR in the lock box:

1. Unlock the door with the lock box key provided, and remove it from the lock box base.
2. Remove the cover from the base by applying even inward pressure on the front tabs with your index fingers. See Figure 2-2.
3. Press the flange through the slot by applying outward pressure with your thumbs, and remove the cover, supporting with one hand.



CAUTION: Equipment damage

Use only the Torx button head screws provided to fasten the DVR to the lock box. Longer screws may penetrate the bottom of the DVR.

4. Depending on your mounting location, fasten the DVR to the cover or base using the three Torx button head machine screws.
5. Determine where the power and camera cables will enter the lock box on the left side or on the right side. If necessary, swap the cable grommet and the hole plug.
6. Use the four #10 × ¾ sheet metal screws or #10 × ¾" self-drilling screws to secure the base of the lock box to the mounting surface.

2.1.4. Installation with the Mounting Bracket

The DVR can be installed using the mounting bracket. See Figure 2-3.

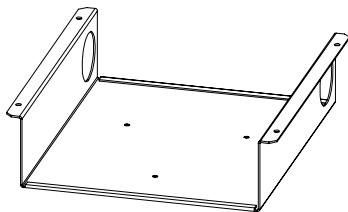


Figure 2-3 Mounting Bracket

To install the Rogue Mobile DVR using a mounting bracket:

1. Fasten the DVR to the mounting bracket using the three Torx button head machine screws provided. See Figure 2-4.

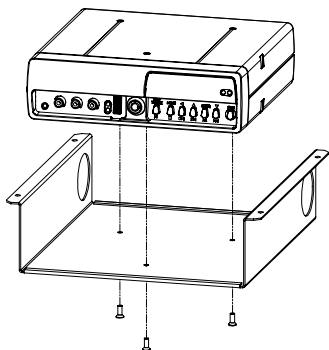


Figure 2-4 Fastening the DVR to the Mounting Bracket

2. Use the four #10 \times $\frac{3}{4}$ " sheet metal screws or #10 \times $\frac{3}{4}$ " self-drilling screws to attach the mounting bracket to a horizontal mounting surface.
3. Connect the wiring and camera connectors to the DVR back panel (see "Step 3: Connecting to the Rogue Mobile DVR" on page 2–9).
4. Route the cables through the grommets or the back panel, depending on the installation requirements.

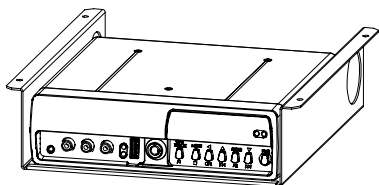


Figure 2-5 Installing the DVR in the Mounting Bracket

2.1.5. Installation with a Mounting Adapter in the Scout Lock Box

The Rogue Mobile DVR can be installed into existing Scout lock boxes by securing the DVR onto a mounting adapter, which slides into the lock box rails. Different mounting adapters are available for the different Scout lock boxes. Table 2-3 provides the Seon part numbers for the mounting adapters available for the different-sized lock boxes.

Table 2-3 Mounting Adapters for Scout Lock Box Installation

Mounting Adapter Kit	Part Number
Rogue DVR mounting adapter for Scout LB box (SCT-LB)	RG-MA-LB
Rogue DVR mounting adapter for Scout LC box (SCT-LC)	RG-MA-LC
Rogue DVR mounting adapter for Scout LD box (SCT-LD)	RG-MA-LD
Rogue DVR mounting adapter for Scout LE box (SCT-LE)	RG-MA-LE

To install the Rogue Mobile DVR in a Scout lock box:

1. If there is a VCR currently installed in the lock box, turn off all power to the VCR.
2. Unlock the lock box door and slide the VCR out of the lock box. Disconnect all the wiring and camera connections from the back panel of the VCR. (It may be necessary to uninstall the lock box from its mounting location and remove the cover.)



CAUTION: Equipment damage

Use only the mounting screws provided to fasten the DVR to the lock box. Longer screws may penetrate the bottom of the DVR.

3. Fasten the Rogue Mobile DVR to the mounting adapter using the three Torx button head machine screws provided. See Figure 2-6.

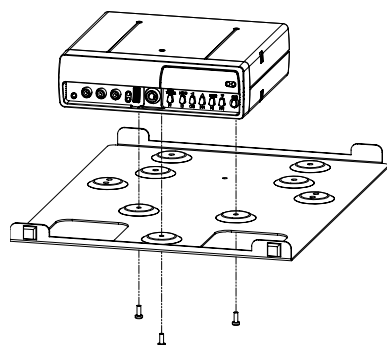


Figure 2-6 Fastening the DVR to a Mounting Adapter

4. Slide the Rogue Mobile DVR and mounting adapter partway into the lock box. See Figure 2-7.

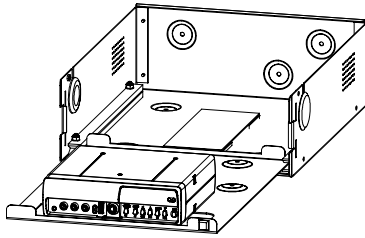


Figure 2-7 Sliding the Mounting Adapter into the Scout Lock Box

5. Reconnect the wiring and camera connections to the back panel.
6. Slide the Rogue Mobile DVR into the lock box.

Figure 2-8 shows a completed installation of the DVR in the lock box.

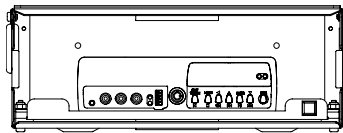


Figure 2-8 Installation of the DVR in the Scout Lock Box

2.2. Step 2: Installing the Camera (New Installation)

If you have purchased a camera from Seon Design, install the camera according to the documentation that shipped with the product.

The Rogue Mobile DVR accommodates several different camera connector types: an integrated mini-DIN connector, a 6-pin Molex, or RCA jacks for the camera signal. The cable comes prewired into the camera.

The camera cable should be long enough to reach from a camera mounted to the header or ceiling of a bus down to the DVR lock box. Different cable lengths can be obtained by contacting Seon Design.

The camera cable can be surface run or concealed.

- If the cable is surface run, ensure the camera cable is secured at multiple points and is protected from sharp corners.
- If the cable is concealed, it can be pulled from either end. Pulling from the connector end requires larger holes in panels. Pulling from the wire end requires the cables to be disconnected from the camera.

Feed the cable through the cable grommet on the DVR lock box. The connectors can be fed through the grommet one at a time, or the grommet can be cut at the top and the cables slid into the grommet. Leave enough cable in the lock box to allow the DVR to slide all the way back.

2.3. Step 3: Connecting to the Rogue Mobile DVR

Figure 2-9 shows the back panel connectors for the alarm input, power input, camera input, audio inputs, video input, and power output.

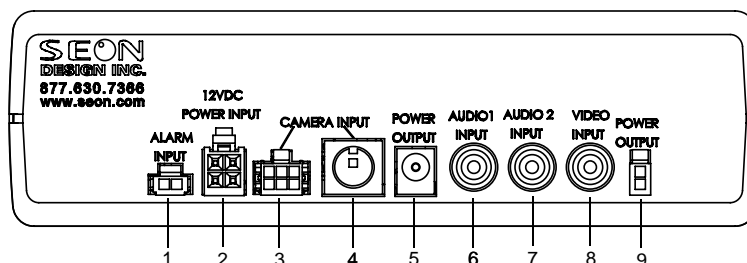


Figure 2-9 Back Panel

The back panel accommodates several different camera connector types:

- a 6-pin Molex (Item 3)
- an integrated mini-DIN connector (Item 4)
- RCA jacks (Item 5, 6, and 8)

Important: Only one of these camera connectors can be used at a time.

Table 2-4 Back Panel Features

Item	Feature	Description
1	ALARM INPUT	Connector (2-pin) for the alarm input cable
2	12VDC POWER INPUT	Connector (4-pin) for the constant and switched power harness
3	CAMERA INPUT	Connector (6-pin) for a camera cable
4	CAMERA INPUT	Connector (DIN style) for a camera cable with audio
5	POWER OUTPUT	Connector (2.1 mm barrel) for an external IR or microphone
6	AUDIO 1 INPUT	Connector (red RCA jack) for a remote microphone or a camera
7	AUDIO 2 INPUT	Connector (white RCA jack) for a remote microphone or a camera
8	CAMERA (VIDEO) INPUT	Connector (yellow RCA jack) for a camera cable
9	POWER OUTPUT	Connector (2-pin) for an external IR or microphone

To connect to the back of the DVR:

1. Plug the connector from the camera into the appropriate mating connector on the back of the DVR.
2. Plug the alarm input cable into the ALARM IN connector.
3. If an optional external microphone is being used, plug the power connection into POWER OUTPUT. If you have an existing RCA camera and want to connect an external microphone, contact Customer Service.
4. Plug the RCA connector into the AUDIO 1 INPUT or AUDIO 2 INPUT jack.

Important: Take care not to pinch or bind any cables when positioning the DVR in the lock box.

2.4. Step 4: Connecting the Constant and Switched Power Harness, Fuses, and Fuse Holders

Important: The supplied in-line automotive fuse holders protect the red battery positive wire and the yellow ignition trigger wire. Butt splice connectors are supplied to connect the fuse holders to their respective wires. The battery positive fuse holder uses the 5 A automotive blade fuse, and the ignition trigger fuse holder uses the 1 A automotive blade fuse.

The constant and switched power harness uses a pair of 16 AWG power wires to connect to the vehicle battery and a 22 AWG yellow wire to connect to a switched circuit. See Figure 2-10.

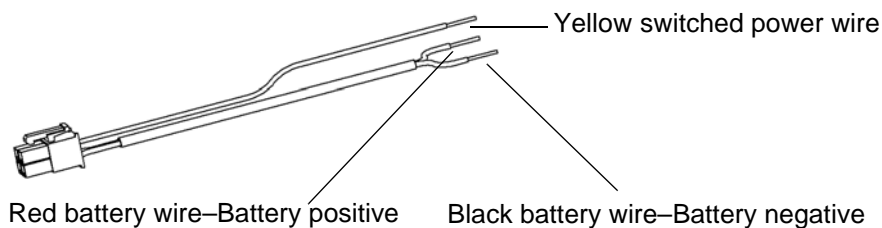


Figure 2-10 Constant and Switched Power Harness Wires

To connect the constant and switched power harness to the battery:

1. Connect the battery power wires as close to the battery as possible.

Important: Connecting the power farther from the battery will result in a larger voltage drop (reduced voltage from the battery to the DVR). If the voltage drop is too large, then the DVR detects the low voltage and stops recording to protect itself. If the voltage stays low for too long, the DVR interprets this as meaning the vehicle battery is drained, and the DVR shuts down completely.

The battery acts as a very good filter for transients and surges on the vehicle power lines. The lines from the battery may experience a voltage drop due to other electrical devices such as lights, blowers, and AC units, for example.

2. If there is a master battery switch in the battery compartment connected to the battery's negative (–) terminal, then connect the black negative (–) battery power wire after the battery switch.
3. The in-line fuse holder consists of a black plastic piece with an attached cap that simply pulls apart. Install the appropriate fuse and push the holder back together.
4. Strip the red wire end appropriately. A butt splice connector is supplied to connect the fuse holder to the red battery power wire. Connect the other end of the fuse holder directly to the battery's positive (+) terminal.
5. Strip the yellow wire end appropriately. A butt splice connector is supplied to connect the fuse holder to the yellow wire. Connect the other end of the fuse holder to an ignition-switched circuit.

6. Plug the connector on the constant and switched power harness into the 12VDC POWER INPUT on the back of the DVR.



CAUTION: Constant and switched power harness connection

To ensure proper performance, connect the red and black power wires to points as close to the battery as possible. **Never** connect the ground wire (black wire) to the vehicle chassis by drilling a hole into a panel and using a sheet metal screw. The ground connection will be corroded very quickly and performance will be compromised.

2.5. Step 5: Connecting the Alarm Input Harness and Alarm Switch

The Rogue Mobile DVR allows for the easy searching of events in the recorded video. An alarm event can be used to set a search point in the digital video, and it can be triggered from a number of different sources, including a driver-activated switch.

2.5.1. Connecting the Alarm Input Harness

The alarm input harness connects to the alarm input connector. See Figure 2-11.

To connect the alarm input harness:

1. Connect the red and black wires from the alarm input harness together to activate the alarm input.
OR
Connect the red wire to the electrical ground to activate the alarm input.
2. Connect the alarm input connector to ALARM INPUT on the DVR.

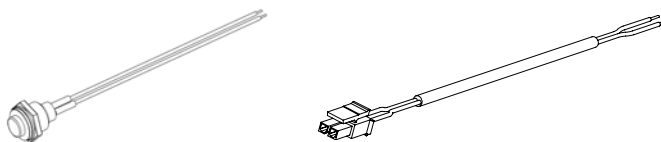


Figure 2-11 Alarm Switch and Alarm Input Harness

2.5.2. Connecting the Alarm Switch

A red push-button alarm switch shown in Figure 2-11 is also provided.

To connect the alarm switch:

1. Mount the switch into a 1/2" hole, and attach to the alarm input harness using the butt splice connectors.
2. Attach the black wire of the alarm switch to the black wire of the alarm input harness.

3. Attach the blue wire of the alarm switch to the red wire in the alarm input harness.

2.6. Rogue Plus Step 6: Installing the Smart-Link™ Module

The Rogue Plus uses the external Smart-Link module to provide interface connections to a variety of different signals. The Smart-Link is designed to be installed into the electrical compartment of a vehicle, reducing the number of cables that connect to the DVR and reducing the lengths of interface harnesses and cables that connect to the vehicle systems. See Figure 2-12.

If you need assistance in determining a suitable location to mount the Smart-Link, contact Customer Service at Seon Design. (The dimensions for the Smart-Link are provided in “Smart-Link™ Module” on page A-3.)

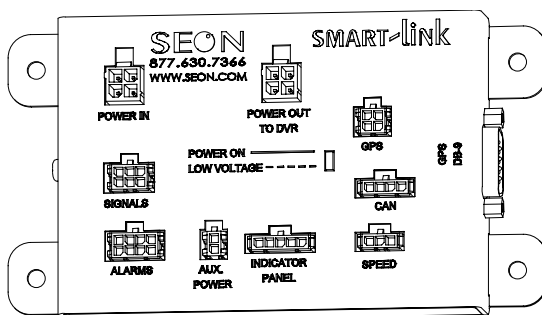


Figure 2-12 Smart-Link module

To install the Smart-Link module:

1. Mount the Smart-Link on a vertical surface to avoid having liquids pool on the bottom.
2. Use the four #10 × ¾" sheet metal screws or the four #10 × 1" self-drilling screws to mount the Smart-Link.
3. Plug one end of the Smart-Link-to-DVR connection harness into the **POWER IN** connector on the DVR.
The connectors on the harness are identical. See Figure 2-13.
4. Plug the other end of the Smart-Link-to-DVR connection harness into the **POWER OUT TO DVR** connector on the Smart-Link.
5. Plug the constant and switched power harness (shown in Figure 2-10) into the **POWER IN** connector on the Smart-Link.
6. Connect the red wire to a 12 VDC battery connection.
7. Connect the black wire to a ground connection.
8. Connect the yellow wire to an ignition-triggered signal.

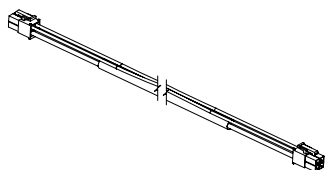


Figure 2-13 Smart-Link-to-DVR connection harness



CAUTION: Constant and switched power harness connection

To ensure proper performance, connect the red and black power wires to points as close to the battery as possible. Never connect the ground wire (black wire) to the vehicle chassis by drilling a hole into a panel and using a sheet metal screw. The ground connection will be corroded very quickly and the performance will be compromised.

Important: The supplied in-line automotive fuse holders are for protecting the red battery positive wire and the yellow ignition trigger wire. Butt-splice connectors are supplied to connect the fuse holders to their respective wires. The battery positive fuse holder uses the 5 A automotive blade fuse. The ignition trigger fuse holder uses the 1 A automotive blade fuse.

2.7. Rogue Plus Step 7: Installing the GPS Receiver

If you have not purchased a GPS receiver or if you wish to install the GPS receiver at a later time, proceed to “Rogue Plus Step 8: Installing the Diagnostic Indicator or Red Button Alarm” on page 2–13.

Seon Design provides several models of GPS receivers designed to work with the Rogue Plus. Contact your sales representative at Seon Design for the GPS receiver best suited to your application.

2.8. Rogue Plus Step 8: Installing the Diagnostic Indicator or Red Button Alarm

If you wish to install the diagnostic indicator or red button alarm at a later time, please proceed to “Rogue Plus Step 9: CAN Network” on page 2–14.

The Rogue Plus with the Smart-Link module has an interface for a diagnostic indicator or a red button alarm. See Figure 2-14. The diagnostic indicator has a weather-sealing gasket attached to prevent water penetration behind the device. The diagnostic indicator is supplied with a 12 inch cable and connector. A 10-foot extension cable is provided as a standard accessory with the diagnostic indicator. Extension cables of different lengths can be ordered from Seon Design. Contact your sales representative to order a different length cable.

To install the diagnostic indicator:

1. Drill a 3/4" hole in the desired location. Ensure that the area behind the hole is clear of obstructions before drilling.
2. Remove the mounting nut from the indicator panel.
3. If you have purchased the video recording label, install the label between the button and the dashboard.
4. Feed the connector and cable through the mounting hole.
5. Reattach the nut.



Figure 2-14 Diagnostic indicator or red button alarm

2.8.1. Rogue Plus: Status of the Diagnostic Indicator

Pushing the button in the center of the diagnostic indicator causes an alarm event to be recorded by the DVR. The button corresponds to Alarm 1 on the Smart-Link alarm harness. The ring indicates the status of the DVR. See Table 2-5.

Table 2-5 Diagnostic indicator status

Ring Color	Function
No green light	No power to the DVR, or ignition is not on.
Flashing green	The DVR is powered up, but not recording.
Solid green	The DVR is powered up and recording.

2.9. Rogue Plus Step 9: CAN Network

The Rogue Mobile DVR has a built-in CAN interface for connecting to J1939 compliant vehicle networks. J1939 is a Society for Automotive Engineers (SAE) specification for network communication in a vehicle. Seon Design can factory program the Smart-Link module to accept ten signals from the large selection available on a vehicle. For more information, contact your sales representative at Seon Design to discuss the CAN interface.

2.10. Step 10: Hardware Installation Final Checklist

2.10.1. Harnesses (camera, recorder, and accessories)

- ☐ Check for proper slack.
- ☐ Check that the cables and harnesses are properly secured.
- ☐ Check that sharp metal edges are not touching the cables or harnesses.
- ☐ Check that all the cables and harnesses are neat and tidy.
- ☐ Check that the connections are solid (no shorts).

2.10.2. Camera

- ☐ Check that the camera is securely mounted.
- ☐ Check the internal harness connections.
- ☐ Check that the lid is properly seated on the gasket and secured tightly.
- ☐ Check the camera field of view.

2.10.3. Recorder

- ☐ Check that the lock box is securely mounted.
- ☐ Confirm that the cable grommet is properly installed.
- ☐ Check that all connections are tight.

2.10.4. System

- ☐ Install the fuses.
- ☐ Plug the video monitor into the DVR.
- ☐ Power up the system.
- ☐ Confirm that the camera and audio sources are operating properly.
- ☐ Confirm that all the status indicators react properly.
 - Media cartridge power indicator
 - Media cartridge (lock and access)
 - Voltage, temperature or system alarms
- ☐ Switch to temporary power by pressing the front panel **Power** (PWR) button with vehicle ignition turned OFF.
- ☐ Test audio/video record and test audio/video playback.
- ☐ Configure the menus per the required end-user specifications.

Configuration

This chapter provides information and procedures for configuring the DVR.

3.1. Configuring the DVR Menu System

The Rogue Mobile DVR uses on-screen configuring for easy setup of all the functions and controls. During live viewing and recording, the information displayed on the screen can include the items shown in Figure 3-1 and described in Table 3-1. All menus are displayed on a blue screen with white text.

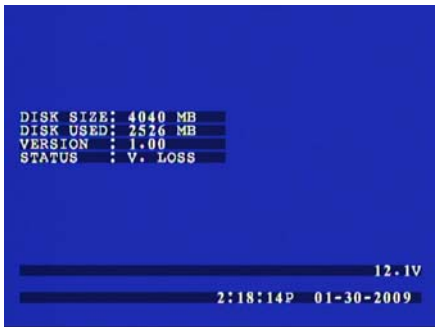


Figure 3-1 On-screen Display during Live Viewing and Recording

Table 3-1 On-screen Display Information

Feature	Description
DISK SIZE	The formatted size for the installed media cartridge is in megabytes (MB) or gigabytes (GB), MB if the disk is less than 10 GB, GB if the drive is bigger than 10 GB.
DISK USED	This indicates how much of the media cartridge has been recorded. The media cartridge will be solid state memory. (The same format as above.)
VERSION	See “Firmware Versions” on page 3–17.
STATUS	This indicates the operation status of the DVR. The options are: <ul style="list-style-type: none">• RECORD (normal recording)• IDLE (live mode not recording)• T RECORD (timer recording)• A RECORD (alarm recording)• V. LOSS (video loss or camera signal loss)• PLAY• F.FWD 2× or (4×, 8×, 16×, 64×)• REW 2× or (4×, 8×, 16×, 64×)• PAUSE• REV PLAY• SLOW FWD• SLOW REV• DOWNLOAD (one-touch download)
TITLE	The camera title is configurable to 28 characters.
TEMPERATURE	This indicates the DVR temperature in degrees Fahrenheit or degrees Celsius.
GPS	This identifies the GPS location of the vehicle.
SPEED DISPLAY	This indicates the recorded speed.
VOLTAGE	This indicates the system voltage. The range is from 8 to 18 VDC.
TIME AND DATE	This indicates the time and date.

3.1.1. Using the DVR Buttons or Remote Control to Configure

Use the DVR buttons or the remote control to configure the Menu system for the DVR. See Figure 3-2. The DVR buttons provide both menu navigation and player functions. For configuration, refer to the menu navigation buttons. For more information, see “Using the DVR Buttons” on page 4–2.

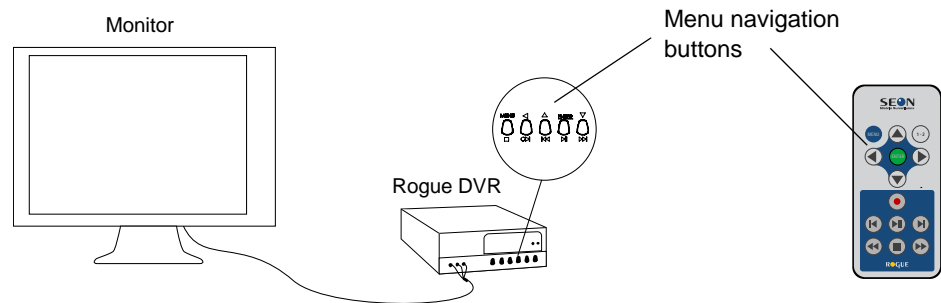


Figure 3-2 Using the DVR or the Remote Control to Configure the Menu System

Use the remote control to configure the menu settings. The buttons provide the same options as the DVR buttons for menu navigation. For detailed information on the remote control features, see “Remote Control (Optional)” on page 1–4.

3.2. Rogue Mobile DVR Main Menu

Set the time and date, create titles, and customize other menu items using the DVR front panel buttons or the remote control.

To view the main menu or change a setting on the menu:

1. If the DVR is recording or playing, press **Menu**.
2. Press **Menu** to display the main menu. Figure 3-3 appears.
3. Press the **Up arrow** to scroll up one line of text, or the **Down arrow** to scroll down one line of text.
4. Press **Enter** to confirm selection of a menu item.
5. Press the **Up arrow** to increase a selected value.
6. Press the **Down arrow** to decrease a selected value.
7. Press **Enter** to confirm selection of a menu item.
8. To exit the menu, press **Menu**.



Figure 3-3 Rogue Mobile DVR Main Menu

3.2.1. Time and Date Menu

Use the Time and Date menu to set the Time Format, Date Format, Set Time, and the Timezone.

Important: After entering or changing the Timezone field, restart the Rogue Mobile DVR for the change to take effect.

To view the Time and Date menu:

1. On the main menu, select Time and Date.
2. Press **Enter**.

The Time and Date menu appears as shown in Figure 3-4.



Figure 3-4 Time and Date Menu

3. Use the **Up arrow** or **Down arrow** to change to the desired value.

Table 3-2 Time and Date Configuration Items

Menu Item	Description	Values [Default]
TIME FORMAT	Set the time in 12-hour (am or pm indication) or 24-hour format.	[12HR], 24HR
DATE FORMAT	Set the preferred date format.	[MM-DD-YYYY] DD-MM-YYYY YYYY-MM-DD

Table 3-2 Time and Date Configuration Items

Menu Item	Description	Values [Default]
GPS TIME SYNCH	Use the time received from the attached GPS to set the DVR time and date.	ON, [OFF]
SET TIME	Set the time and the date for the DVR.	12:00A to 11:59P for 12 HR format
TIMEZONE	Select the time zone for your area. For areas that do not observe daylight saving time, use the NO DST timezone. (For example, Arizona would use MOUNTAIN NO DST. Saskatchewan would use CENTRAL NO DST.)	<ul style="list-style-type: none"> • PACIFIC • MOUNTAIN • MOUNTAIN NO DST • CENTRAL • CENTRAL NO DST • [EASTERN] • ATLANTIC • NEWFOUNDLAND • HAWAII • ALASKA

3.2.2. Title and Display Menu

Use the Title and Display menu to set the on-screen title and other on-screen options.

To view the Title and Display menu:

1. On the main menu, select Title and Display.
2. Press **Enter**.

The Title and Display menu appears as shown in Figure 3-4.

**Figure 3-5** Title and Display Menu

3. Use the **Up arrow** or **Down arrow** to change to the desired value.

Table 3-3 Title and Display Configuration Items

Menu Item	Description	Value [Default]
ON-SCREEN DISPLAY	Show or hide the on-screen information.	[ON], OFF
STATUS DISPLAY	Show or hide the disk size used, firmware version, and the status block.	[ON], OFF
TIME AND DATE DISPLAY	Show the time and date.	[ON], OFF

Table 3-3 Title and Display Configuration Items

Menu Item	Description	Value [Default]
VOLTAGE DISPLAY	Display the system input voltage for diagnosing any potential problems with the system.	[ON], OFF
TEMPERATURE DISPLAY	Display the ambient temperature inside the DVR.	ON, [OFF]
TEMPERATURE UNITS	Display the temperature as degrees Fahrenheit or Celsius.	<ul style="list-style-type: none"> • [F] (Fahrenheit) • C (Celsius)
SPEED DISPLAY	If the speed is not being recorded, set to OFF to turn off the 0 (zero) on the display. If speed input is OFF and speed display is ON, status reads "SPD OFF."	ON, [OFF]
SIGNAL DISPLAY	Show or hide the signal display.	[ON], OFF
GPS DISPLAY	Show or hide the GPS display.	ON, [OFF]
TITLE DISPLAY	Show or hide the title display.	[ON], OFF
TITLE	Set a title from 0 to 28 characters long.	A to Z 0 to 9 . (Period) , (Comma) ' (Apostrophe) - (Hyphen) : (Colon) (Space)

3.2.3. Record Menu

Use the Record menu to set the resolution, camera speed in frames per second (FPS), image quality, Record Delay-On and Record Delay-Off times, and other general recording options.

To view the Record menu:

1. On the main menu, select the Record sub-menu.
2. Press **Enter**.

The Record menu appears as shown in Figure 3-6.

Use the **Up arrow** or **Down arrow** to change the value.

**Figure 3-6** Record Menu

Table 3-4 Record Configuration Items

Menu Item	Description	Value [Default]
RESOLUTION	Set the recording resolution to one of three levels. The higher the recording resolution, the shorter the recording time on a hard drive.	<ul style="list-style-type: none"> • 720 × 480 pixels • [720 × 240] • 352 × 240
SPEED	Set the camera speed from 1 to 30 FPS.	1, 2, 5, [10], 15, 20, 30 FPS
QUALITY	Set the picture quality option from 1 to 5. The DVR uses H.264 video compression to extend the recording time on the hard drive. See “Recording Capacity for Solid State and Hard Drive Media Storage” on page 3–7.	1, 2, [3], 4, 5
RECORD AUDIO	Set the record audio to ON or OFF (no signal is recorded from the audio inputs). Set to OFF if no microphones are being used.	[ON], OFF
REPEAT RECORD	Set to ON to start recording again and overwrite the information on the hard drive. Set to OFF to stop recording and retain all the information on the hard drive.	[ON], OFF
REC DELAY-ON TIME	Determines when the system starts up. The Delay-On option uses Smart-Start™ which protects the DVR from transients and voltage swings during vehicle startup. After power up, the DVR performs a self-test and may take up to 80 seconds to start recording. If the DVR was improperly shut down, recording may take a few minutes to start as the media is checked.	0, 15, [30] sec, 1, 2, 3, 4, 5, 10, 15, 20, 30, 45, 60 min
REC DELAY-OFF TIME	Enables the DVR to continue recording after the driver has turned off the vehicle ignition.	0, 15, [30] sec, 1, 2, 3, 4, 5, 10, 15, 20, 30, 45, 60 min
POWER DELAY-OFF TIME	Keeps power and control signal to the DVR after the vehicle ignition is turned OFF to allow the DVR to be restarted quickly if an alarm occurs, while conserving power by having the cameras OFF.	0, 15, 30 sec, 1, 2, 3, 4, [5], 10, 15, 20, 30, 45, 60 min

3.2.3.1. Recording Capacity for Solid State and Hard Drive Media Storage

The Rogue Mobile DVR uses H.264 video compression to extend the recording time on the hard drive. The recording time varies, depending on the settings for frames per second (speed), resolution (pixel count), and picture quality.

The picture quality setting determines the amount a picture is compressed versus the amount of memory the picture takes up on the hard drive.

- Setting 1 is the standard quality—a lower picture quality means higher compression and a lower memory requirement.
- Setting 5 is the highest picture quality—a higher picture quality means lower compression and a higher memory requirement.

Table 3-5 to Table 3-7 show the estimated recording time in hours for solid state media storage sizes at the different settings for frames per second (FPS), resolution, and picture quality.

Configuration

Table 3-8 to Table 3-10 show the estimated recording time in hours for hard drives at the different settings for frames per second (FPS), resolution, and picture quality.

Important: The average image size is dependent on the scene content and the lighting conditions. Your actual recording times may vary.

Table 3-5 Estimated Recording Time in Hours with 4 GB Solid State Media Storage

Frames per second (FPS)	Picture Quality and Resolution								
	1 352x240	3 352x240	5 352x240	1 720x240	3 720x240	5 720x240	1 720x480	3 720x480	5 720x480
30	19	10	6	13	7	4	10	6	3
20	25	14	8	18	10	6	14	8	4
15	30	17	10	22	12	8	17	9	5
10	38	22	13	29	16	10	22	13	7
5	48	31	19	37	22	15	32	19	10
2	77	44	27	56	31	55	40	25	15
1	80	66	45	73	53	37	60	41	25

Table 3-6 Estimated Recording Time in Hours with 8 GB Solid State Media Storage

Frames per second (FPS)	Picture Quality and Resolution								
	1 352x240	3 352x240	5 352x240	1 720x240	3 720x240	5 720x240	1 720x480	3 720x480	5 720x480
30	38	20	11	27	14	9	20	11	6
20	51	27	16	37	19	12	27	16	8
15	60	35	20	45	24	15	33	19	10
10	77	44	26	58	31	20	43	25	13
5	96	61	37	75	45	29	56	33	18
2	154	88	54	113	62	43	80	50	29
1	160	131	91	145	105	75	121	82	50

Table 3-7 Estimated Recording Time in Hours with 32 GB Solid State Media Storage

Frames per second (FPS)	Picture Quality and Resolution								
	1 352x240	3 352x240	5 352x240	1 720x240	3 720x240	5 720x240	1 720x480	3 720x480	5 720x480
30	153	80	45	107	55	34	80	45	23
20	204	110	65	147	77	49	110	63	32

Table 3-7 Estimated Recording Time in Hours with 32 GB Solid State Media Storage

15	239	140	79	180	98	61	132	75	39
10	308	175	106	234	124	81	172	102	52
5	386	244	150	299	180	117	224	133	71
2	615	352	218	451	246	172	321	200	116
1	640	525	364	581	421	299	480	329	197

Table 3-8 Estimated Recording Time in Hours with 80 GB Hard Drive

Frames per second (FPS)	Picture Quality and Resolution								
	1 352×240	3 352×240	5 352×240	1 720×240	3 720×240	5 720×240	1 720×480	3 720×480	5 720×480
30	380	200	110	270	140	90	200	110	60
20	510	270	160	370	190	120	270	160	80
15	600	350	200	450	240	150	330	190	100
10	770	440	260	580	310	200	430	250	130
5	960	610	370	750	450	290	560	330	180
2	1540	880	540	1130	620	430	800	500	290
1	1600	1310	910	1450	1050	750	1210	820	500

Table 3-9 Estimated Recording Time in Hours with 120 GB Hard Drive

Frames per second (FPS)	Picture Quality and Resolution								
	1 352×240	3 352×240	5 352×240	1 720×240	3 720×240	5 720×240	1 720×480	3 720×480	5 720×480
30	570	300	180	390	210	120	300	180	90
20	750	420	240	540	300	180	420	240	120
15	900	510	300	660	360	240	510	270	150
10	1140	660	390	870	480	300	660	390	210
5	1440	930	570	1110	660	450	960	570	300
2	2310	1320	810	1680	930	1650	1200	750	450
1	2400	1980	1350	2190	1590	1110	1800	1230	750

Table 3-10 Estimated Recording Time in Hours with 160 GB Hard Drive

Frames per second (FPS)	Picture Quality and Resolution								
	1 352×240	3 352×240	5 352×240	1 720×240	3 720×240	5 720×240	1 720×480	3 720×480	5 720×480
30	770	400	220	540	280	170	400	220	120
20	1020	550	320	730	380	250	550	310	160
15	1190	700	400	900	490	310	660	370	200
10	1540	870	530	1170	620	410	860	510	260
5	1930	1220	750	1500	900	580	1120	660	350
2	3080	1760	1090	2250	1230	860	1600	1000	580
1	3200	2620	1820	2900	2110	1500	2420	1650	980

3.2.4. Alarm Menu

Use the Alarm menu to set the options and events that occur when an external alarm is received by the DVR. Usually, a driver-activated switch or other external device causes the alarm.

To view the Alarm menu:

1. On the main menu, select the Alarm sub-menu.
2. Press **Enter**.

The Alarm menu appears as shown in Figure 3-7.

Use the **Up arrow** or **Down arrow** to change to the desired value.



Figure 3-7 Alarm Menu

Table 3-11 Alarm Configuration Items

Menu Item	Description	Value [Default]
ALARM INPUTS	Set to ON, the input options appear as shown in Figure 3-7. Set to OFF, the input options are not displayed.	[ON], OFF

Table 3-11 Alarm Configuration Items

Menu Item	Description	Value [Default]
INPUT	The internal input is available from the DVR back panel. (AL-1 to AL-4 are available in Rogue Mobile DVR Plus systems with the Smart-Link™ module.)	<ul style="list-style-type: none"> • [Internal] • AL-1 • AL-2 • AL-3 • AL-4
INPUT TYPE	Alarm input type is the type of contact closure required to activate an alarm. All the alarm inputs are activated by a change reference to the signal ground.	<ul style="list-style-type: none"> • [NORMAL] • Dome Light
RESOLUTION	Set the recording resolution to one of three different levels. The higher the recording resolution, the shorter the recording time on a hard drive.	<ul style="list-style-type: none"> • [720 × 480] pixels • 720 × 240 • 352 × 240
SPEED	Set the recording speed to the desired setting. A DVR usually records in a mode that conserves hard drive space, but increases video speed and quality for a short duration to record an alarm event.	1, 2, 5, 10, 15, 20, [30] FPS
QUALITY	The DVR uses H.264 video compression to extend the recording time on the hard drive. See “Recording Capacity for Solid State and Hard Drive Media Storage” on page 3-7.	1, 2, 3, 4, [5]
DURATION	The alarm duration is the length of time after an alarm has been received that the video is recorded at the alarm speed and quality.	0, 5, 10, 15, 30 sec, [1], 2, 3, 4, 5, 10, 15, 20, 30, 45, 60 min, Non-stop
PROTECTED ALARMS	Select the percentage of media space to reserve for protected alarms. If protected alarms is enabled, the protected alarm data is stored on the media and never overwritten. Alarms that occur after the protected space is full are unprotected. The protected alarm data can only be manually erased by selecting the Erase protected data option in the System sub-menu (see Figure 3-11 on page 3-15).	<ul style="list-style-type: none"> • [OFF] • 50 PERCENT • 25 PERCENT
ALARM REPEAT RECORD	<p>Set to OFF, once the reserved space for protected alarms is full, the DVR records unprotected alarms until the protected alarm data is manually erased. Unprotected alarms may be overwritten. The protected alarm data can only be manually erased by selecting the Erase protected data option in the System sub-menu (see Figure 3-11 on page 3-15).</p> <p>Set to ON, the alarms start recording and old protected alarms may be overwritten by new alarm data.</p>	[OFF], ON

3.2.5. Timers Menu

Use the Timers menu to change the timer schedules to meet different vehicle route requirements. The DVR supports ten independent timers that can be used to control when and how the DVR records. If the DVR is powered down when a timer occurs, the DVR will power itself up 1 minute prior to the timer start, record for the timer period, and then power OFF.

To view the Timers menu:

- 1. On the main menu, highlight Timers.
- 2. Press **Enter**.

The Timers menu appears as shown in Figure 3-8.

- 3. Use the **Up arrow** or **Down arrow** to change to the desired value.

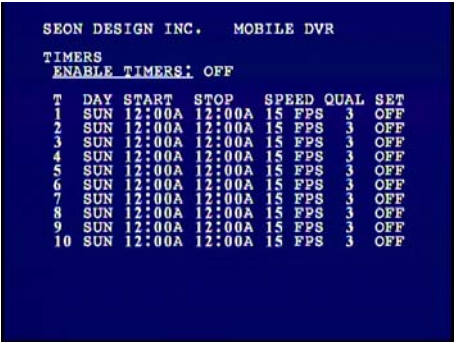


Figure 3-8 Timers Menu

Table 3-12 Timers Configuration Menu

Menu Item	Description	Value [Default]
ENABLE TIMERS	Records at preset times during the day. If the DVR is powered down when a timer occurs, the DVR powers itself up 1 minute prior to the timer start, records for the timer period, and then powers OFF. Note: If the Timers are enabled and all the individual timers are set to OFF, the DVR will not start recording. Either turn ON an individual timer or set Enable Timers to OFF. Record Delay-On settings are overridden by the timers, except for the first 30 seconds. If the system is recording during a Timer interval, then Record Delay-Off settings overrides the timer once the vehicle ignition is turned off.	ON, [OFF]
TIMER 1–10	Set the timer to record.	
DAY	Set the timer to record on a specific day, daily, every weekday, or only on the weekend.	[SUN], MON, TUE, WED, THU, FRI, SAT, DLY, WKY, WND
START	Set in 12-hour in the TIME/DATE menu. Avoid overlapping the Start and End time.	[12:00A] to 11:59P for 12 HR format
STOP	Set in 12-hour format.	[12:00A] to 11:59P for 12 HR format.

Table 3-12 Timers Configuration Menu

Menu Item	Description	Value [Default]
SPEED	Records at the resolution set in the Record menu.	1, 2, 5, 10, [15], 20, 30 FPS
QUALITY	The DVR uses H.264 video compression to extend the recording time on the hard drive. See “Recording Capacity for Solid State and Hard Drive Media Storage” on page 3–7.	1, 2, [3], 4, 5
SET	Set to ON enables the timer. Set to OFF turns the timer off.	ON, [OFF]

3.2.6. Signals Menu

The Rogue Mobile DVR supports five independent signals: LT (left turn signal), STP (stop), BRK (brake), WRN (warning lights), and RT (right turn signal)

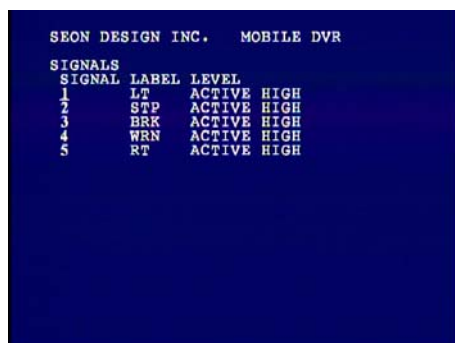
These signals can be used to indicate the status of an indicator and can be set to any 3-character string.

To view the Signals menu:

1. On the main menu, highlight Signals.
2. Press **Enter**.

The Signals menu appears as shown in Figure 3-9.

Use the **Up arrow** or **Down arrow** to change to the desired value.

**Figure 3-9** Signals Menu**Table 3-13** Signal Configuration Items

Menu Item	Description	Value [Default]
LABEL LEVEL: 1	LT (left turn signal)	
2	STP (stop)	
3	BRK (brake)	
4	WRN (warning lights)	
5	RT (right turn signal)	

Table 3-13 Signal Configuration Items

Menu Item	Description	Value [Default]
LEVEL	<p>Indicates the activation level for the signal.</p> <ul style="list-style-type: none"> If ACTIVE HIGH is selected, 12VDC applied to a signal causes the text to be displayed. If ACTIVE LOW is selected, 0VDC applied to a signal causes the text to be displayed. CAN gets a signal from CAN bus. 	<ul style="list-style-type: none"> [ACTIVE HIGH] ACTIVE LOW CAN

3.2.7. Speed Menu

The Speed menu lets you change the settings for recording speed data.

To view the Speed menu:

1. On the main menu, scroll to the Speed sub-menu.
2. Press **Enter**.

The Speed menu appears as shown in Figure 3-10.

**Figure 3-10** Speed Menu**Table 3-14** Speed Configuration Items

Menu Item	Description	Value [Default]
SPEED INPUT	<p>If vehicle speed is not being recorded, set to OFF. This turns off the 0 on the display, which indicates zero speed.</p> <p>If speed is being recorded, select the desired input type to obtain the speed:</p> <ul style="list-style-type: none"> a GPS receiver a pulse counting input vehicle CAN network. <p>All of the speed input devices are optional. Contact your Seon Design sales representative to obtain the optimal speed solution.</p>	<ul style="list-style-type: none"> GPS PULSE [OFF] CAN
SPEED UNITS	<p>If the speed is being recorded from the GPS receiver or the CAN network, the desired speed display units must be selected. Selecting MPH converts the GPS signal to display speed in miles per hour.</p>	[MPH], KPH

Table 3-14 Speed Configuration Items

Menu Item	Description	Value [Default]
SPEED PULSE COUNT	<p>The DVR records vehicle speed by counting the number of pulses received either from a vehicle speed sensor or a vehicle Transmission Control Module (TCM). First calibrate the DVR to the vehicle's speed signal by driving for one mile (kilometer) in Calibration Mode. The DVR counts the pulses from the vehicle's speed sensor and then converts a pulse rate into speed. The actual distance driven during calibration determines the unit of the speed.</p> <p>For example, to have speed recorded in MPH, drive for one mile in Calibration Mode. To have speed recorded in KPH, drive for one kilometer. The SPEED PULSE COUNT increments as the vehicle travels.</p>	003000
CALIBRATE SPEED	<p>When calibrating speed, it is best to use known road markers to determine a mile (kilometer), as reading the odometer may introduce errors.</p> <ul style="list-style-type: none"> • Press Enter to begin calibration. • Press Menu to exit. 	

3.2.8. Search Menu

The Search menu lets you quickly find recorded information by date and time, ignition, alarms, and all events.

3.2.9. System Menu

The System menu allows control of system level settings and functions that should only be accessed by authorized individuals.

To view the System menu:

1. On the main menu, scroll to the System sub-menu.
2. Press **Enter**.

The System menu appears as shown in Figure 3-11.

**Figure 3-11** System Menu

Table 3-15 System Configuration Items

Menu Item	Description	Value [Default]
ONE-TOUCH DOWNLOAD	Use the One-Touch button without a video monitor. See “Using the One-Touch Download Option” on page 4–6.	<ul style="list-style-type: none"> • [ALARMS] • TODAY • TIME
PASSWORD ENABLE	ON: The DVR Menu/Stop button is locked out and requires a password.	ON, [OFF]
SET PASSWORD	The password is six digits.	[000000] to 999999
SET USER DEFAULTS	Save the current settings for later recall.	Not applicable
LOAD USER DEFAULTS	Recall the saved settings.	Not applicable
LOAD FACTORY DEFAULTS	Load the defaults settings.	Not applicable
DISPLAY VERSIONS	Display firmware information. See “Firmware Versions” on page 3–17.	
PROGRAM UPDATE	The firmware can be upgraded in the field. See “Updating the Firmware” on page 3–17.	
ERASE UNPROTECTED DATA	Erase all data that is not protected alarm data. Press Enter to start erasing the data, or Menu to cancel. See Figure 3-12.	
ERASE PROTECTED DATA	Erase all protected alarm footage. Press Menu to start erasing the data, or Menu to cancel. See Figure 3-12.	
ERASE ALL DATA	Erase all data or media. Press Menu to start erasing the data, or Menu to cancel. See Figure 3-12.	

**Figure 3-12** System Menu: Enter to erase or Menu to cancel

3.2.10. Firmware Versions

The firmware version is displayed under the System Menu as Display Versions. Figure 3-13 displays the version numbers of the DVR application, Linux kernel, PIC application, and PIC bootloader.



Figure 3-13 Firmware Version Menu

3.2.11. Updating the Firmware

The firmware update must be obtained from Seon Design. To install a firmware update, a USB memory device must be formatted from a Windows®-based computer using the FAT file format. Load the Program Update file onto the USB memory device.

To install a firmware update on the Rogue Mobile DVR:

1. Power up the DVR using the vehicle ignition.
2. Insert the USB memory device with the new firmware version into the USB port on the front of the DVR.
3. After the DVR has started, press **Menu**.
4. In the System sub-menu, scroll to Program Update.
5. Press **Enter**.

The screen will display **Updating....**

6. Once the update is finished, the DVR will automatically restart.

Important: On restarting, the DVR will take up to 3 minutes to load as it completes the upgrade process. Wait until the DVR finishes loading.

7. Remove the USB memory device.

CHAPTER 4

Operation

This chapter provides information and procedures for operating the Rogue Mobile DVR.

4.1. Operating and Monitoring the DVR

The DVR front panel provides buttons, connectors, and status indicator lights for operating and monitoring the status of the DVR.

4.1.1. Using the DVR Buttons

The DVR buttons provide both menu navigation and player functions. See Figure 4-1. For video playback, refer to the player function buttons which are also available on the remote control.

- Press the **Power** button to power up the DVR without turning the vehicle ignition on.
- Press **Menu** to configure the menu system for the DVR.
- Press the **Player Function** buttons to play, pause, go back, go forward, or stop the recorded video.
- Copy the information to a USB memory device.

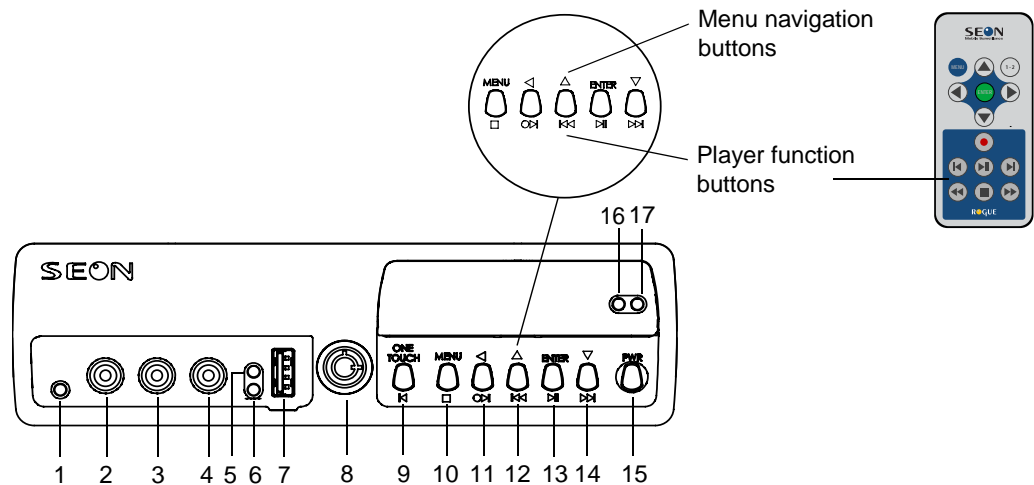









Figure 4-1 Front Panel DVR Buttons and Remote Control

Table 4-1 Front Panel Features

Item	Feature	Description
1	Infrared (IR) receiver	Use with the remote control pointed at the receiver.
2	AUDIO OUT 1	Audio output RCA jack (red)
3	AUDIO OUT 2	Audio output RCA jack (white)
4	VIDEO OUT (yellow)	Video output RCA jack (yellow)
5	POWER INDICATOR (green)	Illuminates when the DVR is powered on.
6	STATUS INDICATOR (red)	<ul style="list-style-type: none">• Not illuminated during normal operation.• Illuminates to indicate low voltage (less than 8 VDC).• Slow flash indicates the heater is on when the temperature is $\leq 3^{\circ}\text{C}$ (37°F) or $\geq 60^{\circ}\text{C}$ (140°F).

Table 4-1 Front Panel Features

Item	Feature	Description
7	USB port	Supports USB devices for: <ul style="list-style-type: none"> • Copying video and audio information. • Exporting video clips. • Updating the DVR firmware.
8	MEDIA CARTRIDGE LOCK	<ul style="list-style-type: none"> • Requires the media cartridge key to remove and lock the media cartridge. • When the DVR is recording, press the Stop button before unlocking and removing the media cartridge. For more information, see “Removing and Replacing the Media Cartridge” on page 4–5.
9	ONE TOUCH/REV button	 <ul style="list-style-type: none"> • Press to start ONE TOUCH download. For more information, see “Using the One-Touch Download Option” on page 4–6. • During video playback, press to reverse by a single frame when playback is paused.
10	MENU/STOP button	 <ul style="list-style-type: none"> • When the DVR is recording, press to stop recording for 5 seconds. • In Idle mode, press to enter the Menu system. Press again to exit the Menu system.
11	BACK ARROW /RECORD/ FRAME ADVANCE	 <ul style="list-style-type: none"> • In the Menu system, press to navigate to a previous item. • In Idle mode, press to begin Record. • In playback with video paused, press to advance by a single frame.
12	UP ARROW/FAST REWIND button	 <ul style="list-style-type: none"> • In the Menu system, press to scroll up one line of text or increase a selected value. • Press to play the DVR in reverse playback. Press the button repeatedly to increase the playback speed 2×, 4×, 8×, 16×, and 64×.
13	ENTER/PLAY/PAUSE button	 <ul style="list-style-type: none"> • In the Menu system, press to display the next screen or confirm the selection of a menu item. • Press to playback or pause video playback. In fast forward or reverse playback mode, press to return to normal playback.
14	DOWN ARROW /FAST FORWARD button	 <ul style="list-style-type: none"> • In the Menu system, press to scroll down one line of text or decrease a selected value. • Press to fast forward playback. Press the button repeatedly to increase the playback speed 2×, 4×, 8×, 16×, and 64×.
15	POWER (PWR) button	 <ul style="list-style-type: none"> • Press for 5 seconds to power up the DVR. • Press for 5 seconds to power down the DVR. • When the DVR is powered up, but in Delay-On time, press for 5 seconds to bypass the Delay-On time. • When the DVR is powered up, but in Delay-Off time, press for 5 seconds to end the Delay-Off time.
16	MEDIA CARTRIDGE POWER INDICATOR (green)	Illuminates when the media cartridge has been properly inserted in the tray.
17	MEDIA ACCESS INDICATOR (red)	Illuminates when the DVR is accessing the media cartridge.

4.2. Viewing Recorded Video

View the video recorded on the Rogue Mobile DVR by using either the DVR attached to a monitor or PC, or using the Rogue Player software. See Figure 4-2. For more information on using the software, see the *Rogue Player Software User Guide* (document part number 700-0065).

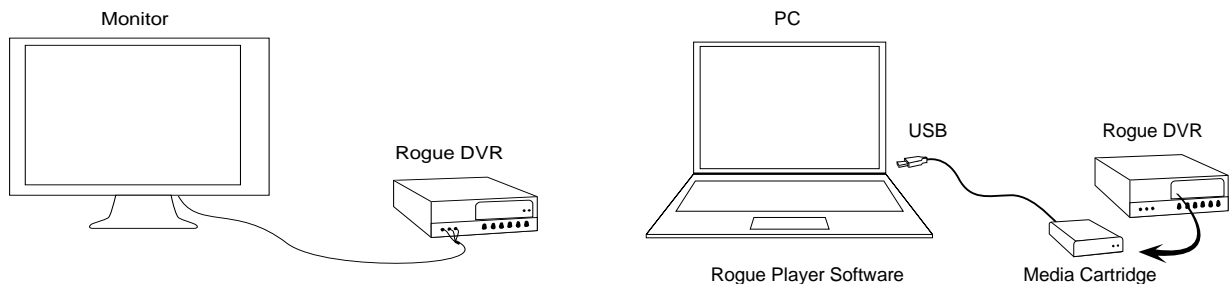


Figure 4-2 Viewing Recorded Video using Rogue Mobile DVR or Rogue Player Software

4.2.1. System Requirements

To use the Rogue Mobile DVR, you will need a computer with the following minimum system requirements:

Table 4-2 Minimum System Requirements

Computer/Processor	<ul style="list-style-type: none">• 2 GHz or higher speed processor• 1024 × 768 monitor resolution• Sound card and speakers
Operating systems	Windows XP with Service Pack 3 or Windows Vista™
Memory	512MB of RAM (minimum 1 GB)
Disk space	10MB of available hard-disk space (250 GB hard drive)
Drive	CD
	USB 2.0 port H.264 decoder
Other requirements	Adobe® Acrobat® Reader to view the <i>Rogue Player Software User Guide</i>

4.2.2. Using the DVR Buttons or Remote Control to Playback Video

The playback of recorded video can be controlled from the DVR front panel buttons or by using the remote control. For detailed information on the remote control features, see “Remote Control (Optional)” on page 1–4.

To playback recorded video:

- Press **Play ▶||** to start playback of the recorded video and audio. Ensure the DVR is not in record mode.
- Press **Pause ▶||** to pause the video.
- While paused, press **Fast Forward ▶▶** to start slow motion forward.

- While paused, press **Fast Rewind** **⏮** to start slow motion reverse. Press **Frame Advance** **⏭** to advance by a single frame, or press **Reverse** **⏮** to reverse by a single frame.
- Press **Fast Forward** **⏭** to speed the play forward from 1× to 2×, 4×, 8×, 16× and 64× the normal speed.
- If fast forwarding, press **Fast Rewind** **⏮** to slow the fast forward, or press **Play** to return to regular speed.

To reverse playback recorded video:

- During playback, press **Fast Rewind** **⏮** to start playing the video in reverse.
- During reverse playback, press **Fast Rewind** **⏮** to speed up the reverse playback from 1× to 2×, 4×, 8×, 16× and 64× the normal speed.
- While rewinding, press **Fast Forward** **⏭** to slow the rewind speed, or press **Play** **▶** to return to normal play.

4.2.3. Using the Rogue Player Software to View Recorded Video

The Rogue Player software provides the most functionality for viewing, editing, and archiving. See the *Rogue Player Software User Guide*, document part number 700-0065.

4.3. Removing and Replacing the Media Cartridge

The DVR has a removable media cartridge that is contained in a media cartridge tray. A media cartridge lock secures the cartridge during operation. Use the media cartridge key to lock and unlock the media cartridge. See Figure 4-3.

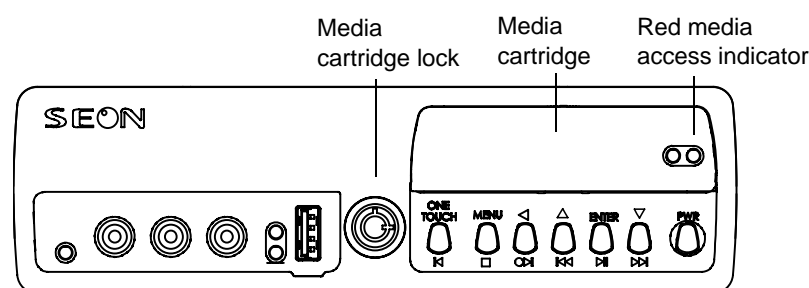


Figure 4-3 Media Cartridge



CAUTION

Do not remove the media cartridge until the red media access indicator is OFF. Failure to do so may result in lost data.

Important: While the media cartridge is hot swappable, (the media cartridge can be removed when the DVR is powered up), do not remove the media cartridge while the DVR is recording, as the video segment may not be recorded. Press **Stop** before unlocking and removing the media cartridge.

To remove the media cartridge:

1. Press **Stop**. Use the media cartridge key to unlock the media cartridge.
2. Insert the media cartridge key, turn counter clockwise by ¼ turn until the drive lock is in the unlocked position.
3. Gently pull out the media cartridge only after the red media access indicator is not illuminated.

To install the media cartridge:

1. Slide in a media cartridge until the cartridge seats inside the front panel.
2. Insert the media cartridge key, turn clockwise by ¼ turn until the drive lock is in the locked position.

4.4. Reading CAN Messages

The Rogue Mobile DVR has a built-in CAN interface for connecting to J1939 compliant vehicle networks. J1939 is a Society for Automotive Engineers (SAE) specification for network communication in a vehicle. For more information, contact your sales representative at Seon Design to discuss the CAN interface.

4.5. Using the One-Touch Download Option

Use the One-Touch download for downloading specific information to a USB drive via the USB port. Only the front panel buttons on the DVR can be used for the One-Touch Download option.

Tip: To review several minutes or hours of video, retrieving the media cartridge from the DVR and viewing the video playback via the Rogue Player software is recommended.





To use the ONE-TOUCH download option:

1. Press **Stop**. Ensure the red media access indicator on the front panel has stopped flashing to complete writing of last data.
2. In the System sub-menu, select the ONE-TOUCH DOWNLOAD option. See “System Menu” on page 3–15.
3. Scroll to the download option shown in Table 4-3. Press **Menu** to exit the menu system after the option has been selected.

Table 4-3 One-Touch Download Options

Item	Download...
ALARMS	All the alarms.
TIME	All video from the current time backwards until the download media is full.
TODAY	All the alarms from today.

4. Insert a USB drive into the USB port on the DVR front panel.

5. If the DVR is powered off, press the **Power**  button for 5 seconds to power up the DVR.
OR
6. If the DVR is powered up and recording, press the **Stop** button .
ONE-TOUCH DOWNLOAD does not work while the DVR is recording.
7. Press the **One-Touch** button  to download information to the USB drive.
The status line of the on-screen display indicates DOWNLOAD. When downloading is complete, the status line indicates IDLE or RECORD when the DVR resumes recording.
8. Remove the USB drive, and power the DVR off by pressing the **Power** button for 3 seconds or press the **Record** button  to return to recording.

4.6. Using the Search Function

The Rogue Mobile DVR includes a powerful search function that lets you quickly find recorded information by Date and Time, Ignition, Alarms, and by All Events.

To view the Search menu:

1. If the DVR is recording, press **Stop** ■.
2. Press **Menu** and navigate to the Search sub-menu.
3. Press **Enter**.

The Search menu appears as shown in Figure 4-4.



Figure 4-4 Search Menu

Table 4-4 Search Configuration Items

Menu Item	Description	Value [Default]
SEARCH TYPE	Select the desired search type. When using Date and Time to search for the first time, the default time setting is the start of the drive. After that, it saves the last search information.	<ul style="list-style-type: none">• [DATE AND TIME]• IGNITION• ALARMS• ALL EVENTS
DATE AND TIME	Set the date and time for the search.	
START SEARCH	Press Enter to Start Search.	
DISK INFO	Displays the size of the media cartridge and the start and end times.	

4.6.1. Searching for Recorded Information by All Events

If All Events, Alarms, or Ignition is chosen, the date and time fields are not displayed.

To search for recorded information by All Events:

1. Select All Events.
2. Scroll to Start Search and press **Enter**.



Figure 4-5 Search by All Events Menu

Several different types of events may be listed as shown in Figure 4-6.

3. Scroll to the event and press **Enter**.

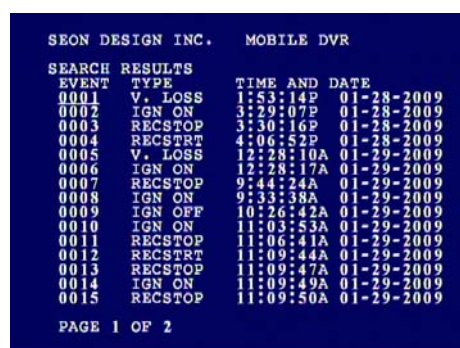


Figure 4-6 All Events Search Results Menu

The menu displays all the events indicated by type. See Table 4-5.

Table 4-5 Event Types

Event	Description
RECSTOP	Recording stopped by front panel button.
RECSTRT	Recording started by front panel button.
IGN ON	Recording started by vehicle ignition turned on.
V. LOSS	Video loss when video output from camera is lost.
IGN OFF	Recording stopped by ignition OFF.
ALARM	Alarm recording.
TMR REC	Timer recording started.
TMR STP	Timer recording ended.

4. Use the **Up arrow** or **Down arrow** to select the event.
5. Press **Enter** to playback.

4.6.2. Searching for Recorded Information by Time and Date

To search for recorded information by Time and Date:

1. Enter the desired TIME and DATE.
2. Scroll to Start Search and press **Enter** to playback.

If the entered date is before any recordings were made, playback will start on the earliest recorded video. If after the latest date, playback will start 1 minute from the end of the latest recorded video.

4.6.3. Searching for Recorded Information by Alarms

To search for recorded information by Alarms:

1. Select Alarms.
2. Scroll to Start Search and press **Enter**.
3. Use the **Up arrow** or **Down arrow** to select the event for playback.

4.6.4. Searching for Recorded Information by Ignition

To search for recorded information by Ignition:

1. Select Ignition.
2. Scroll to Start Search and press **Enter**.
3. Use the **Up arrow** or **Down arrow** to select the event for playback.

4.7. Advanced Smart-Temp™

Advanced Smart-Temp and the built-in heater monitor the temperature inside the DVR and the media cartridge to ensure the safe operation of the unit over a wide temperature range.

Table 4-6 Advanced Smart-Temp Features

Temperature inside the DVR	Advanced Smart-Temp...
Below -4°F (-20°C)	DVR is not powered, although the media cartridge can still be removed from the DVR, heater is on. If the temperature falls below a preset value with the heater on, the DVR shuts down.
Above 149°F (65°C)	Shuts down the DVR to protect the media cartridge from damage.

Table 4-7 Media Cartridge Temperature

Temperature inside the media cartridge	Advanced Smart-Temp...
Above 104°F (40°C)	Media cartridge fan is on.
Above 149°F (65°C)	Media cartridge is powered off. The DVR is on.

Maintenance and Return

This chapter provides information and procedures for:

- Performing maintenance on the Rogue Mobile DVR.
- Returning a product for service.

5.1. Maintenance

5.1.1. Synchronizing the DVR Clock

The clock on the Rogue Mobile DVR should be synchronized every six months to ensure accurate video recording of the time and date. For setting the time and date, see “Time and Date Menu” on page 3–4.

5.1.2. Replacing the Remote Control Battery

The remote control includes a CR 2025 battery that can be replaced when necessary. Replace only with the same type of battery.

To replace the battery:

1. Open the battery compartment on the back of the remote control by pressing the small tab inwards, as shown by the illustration on the remote.
2. Pull the battery compartment out, and remove the old battery.
3. Replace with a new battery inserted into the compartment with the positive side (+) facing up. The battery compartment will close only with the battery properly inserted.
4. Close the battery compartment.

5.1.3. Cleaning the Lock Box

The lock box is made from 18 gauge steel, coated with an outdoor powder paint, and only requires periodic cleaning. To clean the lock box, use a damp cloth with a mild detergent. Do not allow water into the ventilation holes on the lock box.

5.1.4. Cleaning the Camera and Window

Refer to the product documentation for cleaning the camera.

5.2. Returning Product for Service

If any part of the Rogue Mobile DVR is to be returned to Seon Design Inc. for service, contact Seon, provide the model and/or serial number of your unit, and ask for a Return Authorization (RA) number. An RA number allows the service technicians to track your product when it comes in for service. Please have the RA number clearly marked on the outside of the shipping box. **ANY PRODUCT SENT TO SEON DESIGN INC. WITHOUT AN RA NUMBER MAY BE REFUSED.**

The contact numbers for Seon Design Inc. are:

- Toll Free Telephone 1.877.630.7366
- Direct Telephone 604.941.0880

Please refer to the “Seon Design® Inc. Product Warranty” on page W–1 to review the terms of warranty service, contact, and shipping information, as well as other important issues regarding the service and operation of your system.

CHAPTER 6

Troubleshooting

This chapter provides information and procedures on troubleshooting the Rogue Mobile DVR.

6.1. Troubleshooting the Rogue Mobile DVR

The Rogue Mobile DVR is designed for high reliability of operation. If you have any problems with your system, however, read this chapter. If you cannot resolve the issue, contact Customer Service at Seon Design.

Symptom	Possible Cause and Solution
All problems.	<p>Many system problems are caused by issues with the power supplied to the DVR. Check the following:</p> <ul style="list-style-type: none"> • The voltage to the system may be too low. Check the voltage display on the main menu. If the voltage display is turned OFF, go to the Title and Display sub-menu and turn Voltage Display to ON. The voltage range should be between 8 to 18 VDC. See “Title and Display Menu” on page 3–5. • The power harness from the DVR must be connected as close to the battery as possible. Check the wiring to the battery. See “Step 4: Connecting the Constant and Switched Power Harness, Fuses, and Fuse Holders” on page 2–10. • Check the in-line fuses and fuse holders. If a fuse is blown, determine the cause before replacing it.
The DVR does not power on.	<ul style="list-style-type: none"> • Is the internal temperature below 40°F (4°C)? Check the temperature display on the main menu. See “Title and Display Menu” on page 3–5. • Is the constant and switched power harness plugged into the DVR securely?
The DVR turns on but does not start recording.	<ul style="list-style-type: none"> • Check the ignition wiring from the power input harness. Is the yellow wire connected to an ignition switched circuit? • Is the media cartridge installed properly with the key in the locked position on the front panel? • Is the temperature below 40°F? Check the temperature display on the main menu. See “Title and Display Menu” on page 3–5. Wait for the DVR to warm up and start recording. • Is the temperature above 122°F (50°C)? Check the temperature display on the main menu. • Check the battery voltage. • Check the settings for Record Delay-On time in the Record menu. See “Record Menu” on page 3–6. • Are the timers on? See “Timers Menu” on page 3–12.
There is no picture on the video monitor output.	<ul style="list-style-type: none"> • Check the connections inside the camera, as well as the connections inside the DVR lock box. • The voltage to the system may be too low, less than 8 VDC. If the status LED on the front panel is illuminated, the DVR is in low voltage.
The live camera picture is snowy, fuzzy, or grainy.	<ul style="list-style-type: none"> • Check all connections inside the camera. • Is the camera cable damaged? • Check the connections inside the DVR lock box. • Is the DVR power harness connected directly to the bus battery?
The playback picture is snowy, fuzzy, or grainy.	<ul style="list-style-type: none"> • Is the power input harness connected to the battery? • Check the video monitor cable attached to the front or back of the DVR.

Appendix A

Specifications

This appendix provides the product specifications for the Rogue Mobile Digital Video Recording (DVR) System.

Note: Specifications are subject to change without notice.

A.1. Rogue Mobile DVR

Video Input/Output	75 Ohm NTSC video
Video Resolution	720 × 480 pixels 720 × 240 pixels 352 × 240 pixels
Video Compression	H.264
Media Storage	Solid state: 4 GB, 8 GB, 16 GB, and 32 GB Hard drive: 80 GB, 120 GB, and 160 GB
Media Cartridge Removal	Hot swappable, locking key-secured
Camera Input Connector	6-pin mini DIN connector, 6-pin Molex, RCA jacks
Audio Input Level	−8 dBm
Audio Output Level	−6 dBm, 10 kOhm
Operating Temperature	−4°F to 140° F (−20°C to 60°C)
Storage Temperature	−40°F to 158°F (−40°C to 70°C)
Operating Humidity	0 to 95% relative humidity, non-condensing
Operating Voltage	8 to 18 VDC ¹
Transient Protection	1500 W
Temperature Protection	Advanced Smart-Temp
Power Harness Connector	4-pin Molex
Alarm Input Connector	2-pin Molex
Media Cartridge Dimensions (H × W × D)	0.83 × 3 × 5.1" (21 × 76 × 130 mm)
DVR Dimensions (H × W × D)	2 × 7 × 6.5" (51 × 178 × 165 mm)
Power Circuit Fuse	5 A
Ignition Circuit Fuse	1 A

1.The DVR operates between 8 to 18 VDC; however, when the voltage is below 11 VDC, the camera may start to shut down as the voltage is too low to operate the camera properly.

A.2. Rogue Mobile DVR Functional Features

Time Format	12-hour or 24-hour format
Date Format	MM-DD-YYYY, DD-MM-YYYY and YYYY-MM-DD
Camera Title	28 characters
Repeat Record	User selectable ON/OFF
Record Delay-On	0 seconds to 60 minutes
Record Delay-Off	0 seconds to 60 minutes
Power Delay-Off	0 minutes to 60 minutes

Daily Timers	10
Alarm Input	1, User selectable ON/OFF with variable resolution, speed, quality, and duration. (AL-1 to AL-4 are available in Rogue Mobile DVR Plus Systems with the Smart-Link™ module.)
Playback Search	Date and Time, Ignition, Alarms, or All Events
Playback Speed	Image-by-Image, 1×, 2×, 4×, 8×, 16×, 64×, 1/3×
USB Memory Device	SanDisk Cruzer® Mini or equivalent

A.3. Rogue Mobile DVR Lock Box

Main Enclosure	18 GA cold rolled steel (CRS)
Coating	Powder coated black paint
Door Lock	Industrial cam lock, keyed alike.
Dimensions (H × W × D)	2 5/16 × 8 3/16 × 10 1/8" (59 × 208 × 257 mm) See Figure A-1.

A.4. Smart-Link™ Module

Power Harness Connector	4-pin Molex
Auxiliary Power Output Connector	2-pin Molex
GPS Input Connector	4-pin Molex
Signals Connector	6-pin Molex
CAN bus Network Connector	4-pin Molex
Serial Port/GPS	9-pin DB9
Alarm Input Connector	8-pin Molex
Indicator Panel Connector	5-pin Molex
Speed Input Connector	3-pin Molex
Dimensions (H × W × D)	5.875 × 3.25 × 0.875" (150 × 83 × 23 mm)
Weight	5.6 oz (160 g)
Material	14 GA aluminium, anodized black

Specifications

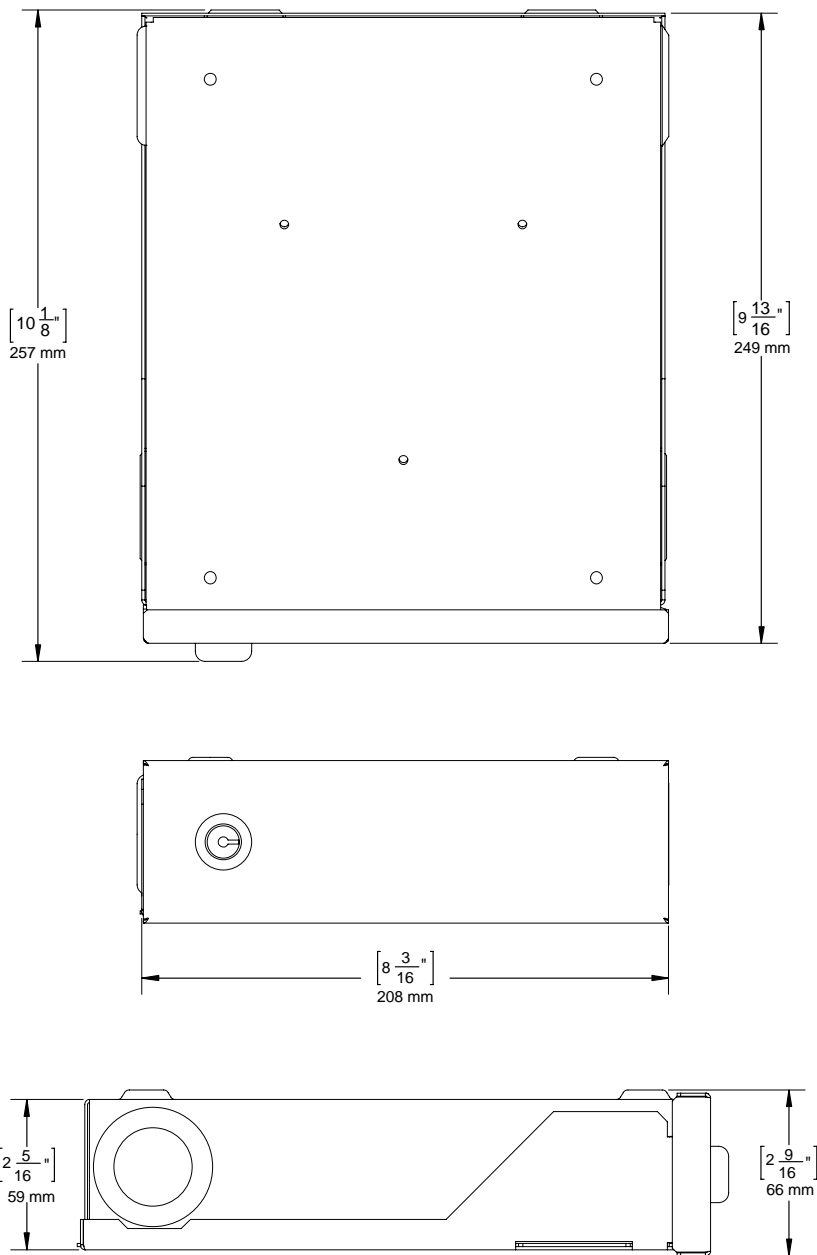


Figure A-1 Rogue Mobile DVR Lock Box Dimensions

Seon Design® Inc. Product Warranty

Seon Design Inc. (Seon) warrants the cameras and components listed below against defects in workmanship and materials provided that such defects appear or are discovered within the respective periods specified below and provided further that the purchaser of such products notifies Seon of such defects within thirty (30) days of the appearance or discovery of such defects:

- Five (5) years from date of purchase parts and labor on the SA Wedge Camera Series
- One (1) year from date of purchase parts and labor on the SA-IR Illuminator
- One (1) year from date of purchase parts and labor on the Rogue™ Mobile DVR Systems
- One (1) year from date of purchase parts and labor on the Trooper® Mobile DVR Systems
- One (1) year from date of purchase parts and labor on the Explorer™ Mobile DVR Systems
- One (1) year from date of purchase parts and labor on all other products and accessories

All service/replacement parts and repairs are warranted for a period of 90 days.

Subject to the terms and conditions listed below, during the relevant warranty period, Seon will repair, replace, or refund the purchase price for the defective product, whichever Seon considers to be appropriate in the circumstances, in Seon's sole and arbitrary opinion, free of charge, any defective products returned prepaid. In the event purchaser has a problem with any Seon product, please call and request a **RETURN AUTHORIZATION (RA) NUMBER** from the Service Department.

Please call 877-630-7366 or (604) 941-0880 and ask for the Service Department. Be sure to have the model number, serial number and the nature of the problem available for the customer service representative. Prior authorization **MUST** be obtained for all returns, exchanges, or credits. **ITEMS SHIPPED TO SEON WITHOUT A CLEARLY IDENTIFIED RA NUMBER MAY BE REFUSED.**

Products returned will be tested to verify the defect. Upon verification of the defect, the product will be repaired or exchanged, or the purchase price will be refunded or credited to the customer's account, at the sole option of Seon. In the event of replacement, the returned product will be credited to the customer's account and a new invoice issued for the replacement item. Seon reserves the right to refund the purchase price or to issue a credit only in lieu of replacement.

Seon may use new or refurbished replacement parts for repairing its products, at its sole and arbitrary discretion. Seon may replace an entire unit with an equivalent model, at its sole and arbitrary discretion. If a unit is exchanged, the returned product shall become the property of Seon and the exchange product becomes the property of the purchaser, and the remainder of the warranty that applied to the original unit purchased shall apply to the exchanged product. Exchange units may be new units or units that have been repaired to full factory specifications at Seon's discretion.

If the product is found to be in good working order or its inability to function properly is not covered by this warranty, the product will be returned in the same condition as received unless repair is possible and requested by the customer. Repairs of such nature will incur a charge for parts and labor and will proceed only by agreement with the customer to accept the charge.

This warranty shall not apply:

- (a) to equipment not supplied by Seon;
- (b) to equipment, including, any components, which shall have been operated in excess of rated capacity, subject to negligence, accident, or damage by circumstances beyond Seon's control, or to improper installation, operation, maintenance, servicing, alterations or storage, modification without Seon's written authorization, misuse, vandalism, fire, floods or acts of nature so as, in Seon's exclusive and arbitrary judgment, to affect the same adversely; or
- (c) if the serial number for the product has been altered in any way.
- (d) if the product has been operated outside of the specified Operating Environment specified in the Seon Users Manual for such product.

Disclaimer

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS, WARRANTIES, GUARANTEES AND CONDITIONS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE AND WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, SEON EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY, DURABILITY OR FITNESS FOR PURPOSE AND ANY WARRANTIES OR MODIFIED WARRANTIES ARISING FROM USAGE OF TRADE OR COURSE OF DEALING.

Any description of the goods or services, whether in writing or made orally by Seon or Seon's agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets or similar materials used in connection with customer's order are for the sole purpose of identifying the goods and/or services and shall not be construed as an express warranty. Any suggestions by Seon or Seon's agents regarding use, applications or suitability of the goods and/or services shall not be construed as an express warranty unless confirmed to be such in writing by Seon. Purchaser assumes full responsibility for selecting products to achieve purchaser's intended purposes, for properly installing and using those products, and for verifying the results obtained therefrom.

PURCHASER'S EXCLUSIVE REMEDY AND SEON'S ENTIRE LIABILITY ARISING FROM OR IN CONNECTION WITH PURCHASER'S USE OF THE PRODUCTS AND/OR THIS AGREEMENT SHALL BE REPAIR OR REPLACEMENT OF DEFECTIVE PRODUCTS, OR REFUND OR CREDIT OF THE PURCHASE PRICE OF THE PRODUCTS AS SET FORTH ABOVE. SEON SHALL NOT BE SUBJECT TO AND DISCLAIMS: (A) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY, (B) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE, AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO GOODS SOLD OR SERVICES RENDERED BY SEON, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (C) ALL CONSEQUENTIAL, INCIDENTAL, SPECIAL AND CONTINGENT DAMAGES WHATSOEVER, EVEN IF SEON HAS BEEN SPECIFICALLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Seon Design® Inc. Product Warranty

Without limiting the generality of the foregoing, Seon specifically disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits or revenues, loss of use of goods or any associated equipment, cost of capital, cost of substitute goods, facilities or services, down-time, shut-down or slow-down costs, or for any other types of economic loss, and for claims of customer's customers or any third party for any such damages. Some jurisdictions do not allow limitation or exclusion of incidental or consequential damages, so this limitation or exclusion may not apply to purchaser. In no event shall Seon's total liability for any damages to purchaser or any other person in connection with the products or this agreement exceed the lower of the suggested list price or the actual price paid for the products, regardless of whether such liability arises from contract, tort, warranty or any other form of claim.

If any provision of this agreement is found to be void, invalid, or unenforceable, that finding shall not affect the remaining provisions, all of which shall be enforced to the full extent permitted by law. If any remedy hereunder is determined to have failed of its essential purpose, the limitations of liability and exclusion of damages set forth above shall remain in full force and effect. This agreement may be modified only in writing signed by a duly authorized representative of Seon.

Provisions Applicable to American Customers

For those customers whose mailing address is in the United States, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the State of WASHINGTON without giving effect to the conflict of laws rules thereof. The Superior Court of Washington for Whatcom County and U.S. District Court for the Western District of Washington ("the U.S. Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. Customer specifically consents to such Court's exercise of jurisdiction over it. The purchaser attorns to the exclusive jurisdictions of the jurisdiction of the U.S. Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the U.S. Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.

Provisions Applicable to Canadian Customers

For those customers whose mailing address is in Canada, Seon's offer and any agreement of sale resulting therefrom shall be governed by and construed in accordance with the internal and domestic laws of the Province of BRITISH COLUMBIA and the laws of Canada applicable therein without giving effect to the conflict of laws rules thereof. The courts of British Columbia (the "Canadian Closed Courts") shall have exclusive jurisdiction to entertain and determine all disputes and claims, whether for specific performance, injunction, declaration or otherwise arising out of or in any way connected with the construction, breach, or alleged, threatened or anticipated breach of the contract resulting from this offer and shall have jurisdiction to hear and determine all questions as to the validity, existence or enforceability thereof. The purchaser attorns to the exclusive jurisdictions of the jurisdiction of the Canadian Closed Courts, waives any obligation to venue in any action or proceeding regarding Seon Products and waives any objection that the Canadian Closed Courts are an inconvenient forum or do not have jurisdiction over the purchaser of Seon. The United Nations Convention On Contracts For The International Sale Of Goods shall not apply.

Seon Design Inc.
Unit 111, 3B Burbridge Street
Coquitlam, BC
Canada V3K 7B2

Telephone	604.941.0880
Toll Free Telephone	1.877.630.7366
Fax	604.941.0870
Toll Free Fax	1.866.664.3677
Email	sales@seon.com
Web site	www.seon.com